



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.  |
|-----------------|-------------|----------------------|---------------------|-------------------|
| 10/820,438      | 04/08/2004  | Gerald Alan Tromblee | PCC126              | 7153              |
| 32047           | 7590        | 04/13/2006           |                     | EXAMINER          |
|                 |             |                      |                     | BONANTO, GEORGE P |
|                 |             |                      | ART UNIT            | PAPER NUMBER      |
|                 |             |                      |                     | 2855              |

DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                       |  |
|------------------------------|-------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>        | <b>Applicant(s)</b>                   |  |
|                              | 10/820,438                    | TROMBLEE ET AL.<br><i>[Signature]</i> |  |
|                              | Examiner<br>George P. Bonanto | Art Unit<br>2855                      |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 10 March 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1 and 3-21 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 3/10/2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 13 and 20 are objected to because of the following informalities: the word “planes” should be deleted and the word “plane” should be inserted in its place. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, and 5-8, 10, 11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,145 to Chamings et al..

As to claim 1, Chamings et al. disclose a child safety seat sensor system comprising a main plate configured for attachment to a fixed vehicle structure, the main plate disposed in a first plane (cable retainer 90a; Fig.12) a movable member (housing parts 71a and 71b; Fig. 9) having a portion at least partially disposed in an opening in the main plate (magnetic sensor 200 disposed in hole in cable retainer 90a; Fig. 12) the movable member comprising a connection portion extending from the main plate in a second plane oriented at an oblique angle relative to the first plane (anchor 154; Fig. 9) the connection portion comprising a connection bar for receiving an attachment mechanism fixed to the child safety seat (child seat 35; Fig. 1) at least one magnet fixed to the main plate (magnet 120 attached to end 414 of cable retainer 90a; Fig. 9) and a Hall device disposed adjacent the magnet and fixed to the movable member (sensor 200;

Fig. 9) whereby tension on the connection bar causes relative motion between the at least one magnet and the Hall device (Force F1 on anchor 154 causes relative movement; col. 5) the hall device providing a first output upon application of tension to the bar and a second output when the tension is removed (col. 5). Chamings et al. fail, however, to explicitly disclose an arrangement where the magnet is fixed to the movable member and the sensor is fixed to the main plate.

It would have been obvious to one of ordinary skill in the art to modify the sensor of Chamings et al. by locating the magnet in the place of the sensor and the sensor in the place of the magnet in order to locate a wire attached to the sensor closer to the vehicle body where it is better protected from damage since rearrangement of parts involves only routine skill in the art (MPEP 2144).

As to claim 3, Chamings et al. further disclose at least one spring for biasing the movable member in a first position relative to the main plate (spring 148; Fig. 9).

As to claim 5, Chamings et al. further disclose that the oblique angle is about 30 degrees (Fig. 9).

As to claim 6, Chamings et al. further disclose that the opening in the main plate comprises a cutout in the main plate (Fig. 9).

As to claim 7; Chamings et al. further disclose that the main plate is configured for attachment to a fixed vehicle structure adjacent to a seat assembly (anchor point 40 or vehicle floor; Fig. 1) and the connection bar is configured to extend between a seat back and a seat cushion of the seat assembly (Fig. 1).

As to claim 8, Chamings et al. disclose a system comprising a seat assembly comprising a seat back portion and a seat cushion portion (Fig. 1) a sensor main plate configured for attachment to a fixed vehicle structure adjacent to a rear side of the seat assembly, the main plate disposed in a first plane (cable retainer 90a; Fig. 12 configured for attachment to anchor point 40; Fig. 1) a movable member having a portion at least partially disposed in an opening in the main plate (magnetic sensor 200 disposed in hole in cable retainer 90a; Fig. 12) the movable member comprising a connection portion extending from the main plate in a second plane oriented at an oblique angle relative to the first plane (anchor 154; Fig. 9) the connection portion comprising a connection bar for receiving an attachment mechanism fixed to the child safety seat (child seat 35; Fig. 1) at least one magnet fixed to the main plate (magnet 120 attached to end 414 of cable retainer 90a; Fig. 9) and a Hall device disposed adjacent the magnet and fixed to the movable member (sensor 200; Fig. 9) whereby tension on the connection bar causes relative motion between the at least one magnet and the Hall device (Force F1 on anchor 154 causes relative movement; col. 5) the Hall device providing a first output upon application of tension to the bar and a second output when the tension is removed (col. 5). Chamings et al. fail, however, to explicitly disclose an arrangement where the magnet is fixed to the movable member and the sensor is fixed to the main plate.

It would have been obvious to one of ordinary skill in the art to modify the sensor of Chamings et al. by locating the magnet in the place of the sensor and the sensor in the place of the magnet in order to locate a wire attached to the sensor closer to the vehicle body where it is better protected from damage since rearrangement of parts involves only routine skill in the art (MPEP 2144).

As to claim 10, Chamings et al. further disclose that the opening in the main plate comprises a cutout, at least a portion of the movable member being disposed in the cutout (Fig. 9).

As to claim 11, Chamings et al. further disclose at least one spring for biasing the movable member in a first position relative to the main plate (spring 148; Fig. 9).

As to claim 13, Chamings et al. further disclose that the oblique angle of the first plane relative to the second plane is about 30 degrees (Fig. 9).

As to claim 14, Chamings et al. further disclose that the sensor main plate is configured to be attached to a fixed vehicle structure via a tapered mounting bracket (tapered portion 112b; Fig. 12).

As to claim 15, Chamings et al. further disclose that the movable member comprises a magnet holder at least partially disposed in the opening in the main plate (sensor retainer 180a holding magnet 120 or magnet retainer 100a in the place of sensor retainer 180a as discussed above; Fig. 9) and the connection portion is fixed to the magnet holder (Fig. 9 and col. 6).

As to claim 16, Chamings et al. further disclose that the magnet holder comprises an opening and the magnet is configured to be received in the opening (magnet 120 in opening in magnet retainer 100a or in opening in sensor retainer 180a; Fig. 9).

As to claim 17, Chamings et al. further disclose that the moveable member comprises an opening for receiving the Hall device (Fig. 9).

As to claim 18, Chamings et al. further disclose that a front and rear cover configured to be attached to the main plate for at least partially enclosing at least a portion of the movable

member (housing parts 71a and 71b enclose at least the magnet which is part of the movable member; Fig. 9).

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,145 to Chamings et al., as applied to claims 1 and 8 above, and further in view of Published U.S. Application No. 2003/0150283 to Stanley et al.

As to claims 4 and 12, Chamings et al. fail to explicitly disclose that the system comprises two opposed magnets fixed to the movable member, the magnets oriented with a same magnetic pole facing one another, and wherein the Hall device is disposed between the opposed magnets.

Stanley et al. disclose a sensor comprising two opposed magnets fixed to a moveable member, the magnets oriented with a same magnetic pole facing one another, and wherein a Hall device is disposed between the opposed magnets (Figs. 14a and 16).

It would have been obvious to one of ordinary skill in the art to modify the system of Chamings et al. by including the magnet and sensor arrangement of Stanley et al. in order to improve the linearity of the output of the sensor with respect to travel of the magnets (Stanley et al.; paragraph 51 and Fig. 15).

Claims 9, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,145 to Chamings et al. as applied to claim 8 above, and further in view of Published U.S. Application No. 2002/00303378 by Takahashi.

As to claim 9, Chamings et al. fail to explicitly disclose that the connection bar comprises an ISOFIX bar.

Takahashi discloses a connection bar that comprises an ISOFIX bar (paragraphs 28 and 44).

It would have been obvious to one of ordinary skill in the art to modify the connection bar of Chamings et al. by using the ISOFIX bar of Takahashi in order to conform to international standards for child restraint attachment systems (Takahashi; paragraph 28).

As to claim 19, Chamings et al. disclose a system comprising a seat assembly comprising a seat back portion and a seat cushion portion (Fig. 1) a sensor main plate configured for attachment to a fixed vehicle structure adjacent to a rear side of the seat assembly, the main plate disposed in a first plane (cable retainer 90a; Fig. 12 configured for attachment to anchor point 40; Fig. 1) a movable member comprising a sensor holder at least partially disposed in an opening of the main plate (sensor retainer 180a; Fig. 9) a connection portion extending from the main plate in a second plane oriented at an oblique angle relative to the first plane (anchor 154; Fig. 9) the connection portion comprising a connection bar for receiving an attachment mechanism fixed to the child safety seat and coupled to the sensor holder (child seat 35; Fig. 1) a Hall device received in an opening of the sensor holder (sensor 200 in sensor retainer 180a; Fig. 9) and at least one magnet disposed adjacent to the sensor and fixed to the main plate (magnet 120 in magnet retainer 100a attached to end 414 of cable retainer 90a; Fig. 9) whereby tension on the connection bar causes relative motion between the at least one magnet and the Hall device (Force F1 on anchor 154 causes relative movement; col. 5) the Hall device providing a first output upon application of tension to the bar and a second output when the tension is removed (col. 5). Chamings et al. fail, however, to explicitly disclose an arrangement where the magnet is fixed to the movable member and the sensor is fixed to the main plate.

It would have been obvious to one of ordinary skill in the art to modify the sensor of Chamings et al. by locating the magnet in the place of the sensor and the sensor in the place of the magnet in order to locate a wire attached to the sensor closer to the vehicle body where it is better protected from damage since rearrangement of parts involves only routine skill in the art (MPEP 2144).

Chamings et al. further fail to explicitly disclose that the connection bar is an ISOFIX bar.

Takahashi discloses a connection bar that comprises an ISOFIX bar (paragraphs 28 and 44).

It would have been obvious to one of ordinary skill in the art to modify the connection bar of Chamings et al. by using the ISOFIX bar of Takahashi in order to conform to international standards for child restraint attachment systems (Takahashi; paragraph 28).

As to claim 20, Chamings et al. further disclose that the oblique angle of the first plane relative to the second plane is about 30 degrees (Fig. 9).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,145 to Chamings et al. and Published U.S. Application No. 2002/0030378 by Takahashi as applied to claim 19 above, and further in view of Published U.S. Application No. 2003/0150283 by Stanley et al.

As to claim 21, Chamings et al. and Takahashi fail to explicitly disclose that the system comprises two opposed magnets at least partially received in respective openings of the magnet holder, the magnets oriented with a same magnetic pole facing one another, and wherein the Hall device is disposed between the opposed magnets.

Stanley et al. disclose two opposed magnets at least partially received in respective openings of a magnet holder, the magnets oriented with a same magnetic pole facing one another, and wherein a Hall device is disposed between the opposed magnets (Figs. 14a and 16).

It would have been obvious to one of ordinary skill in the art to modify the system of Chamings et al., including the ISOFIX bar of Takahashi, by including the magnet and sensor arrangement of Stanley et al. in order to improve the linearity of the output of the sensor with respect to travel of the magnets (Stanley et al.; paragraph 51 and Fig. 15).

***Response to Arguments***

Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,903,286 and Published U.S. Application Nos. 2003/0060997; 2003/0089544 and 2004/0084940 disclose various child seat attachment arrangements and sensors.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George P. Bonanto whose telephone number is (571) 272-2182. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GPB  
11 April 2006

  
EDWARD LEFKOWITZ  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800